

Mounting The LED Analyser in a Test Fixture with Optical Heads



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Rev. 1.2

Date: Feb, 2010



About this Manual

Feasa operates a policy of continuous development. Feasa reserves the right to make changes and improvements to any of the products described in this document without prior notice.

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FEASA LED ANALYSER FUNCTIONAL



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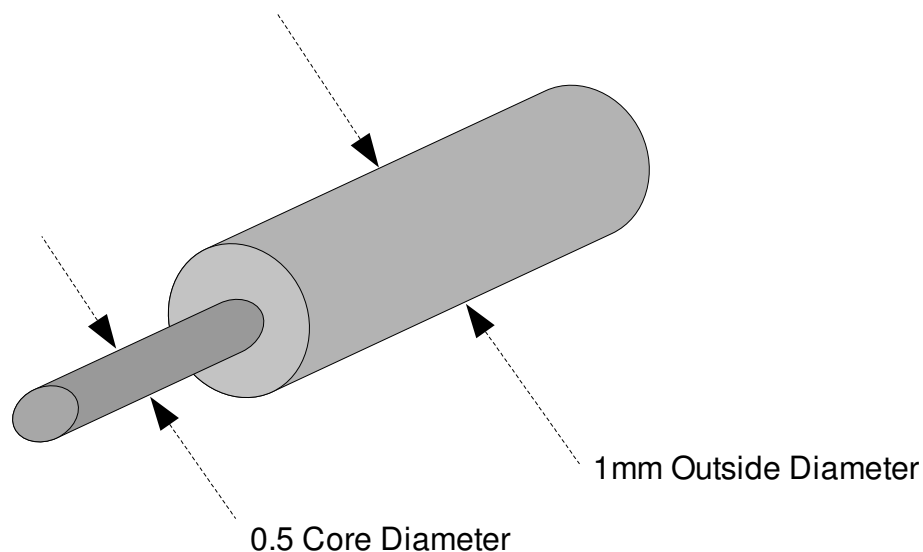
Mounting the LED Analyser in a Test Fixture

Introduction

Construction of the fixture is one of the most critical aspects of a successful implementation of the Feasa Led Analyser. If this step is implemented properly the resulting tests will be more stable and repeatable with low risk of false failures.

Plastic Fiber

The Plastic Optical fiber used is 1mm outside diameter with a 0.5mm core.



Some important characteristics of the fiber are as follows:-

- Minimum bend radius 15mm.
- Operating temperature range of fiber -55° to +70° degrees Celsius.

Mounting the LED Analyser

The LED Analyser can be mounted on the top or bottom side of the Fixture. Take care when selecting the mounting position and ensure that the fibers can be routed through the Fixture **without** using sharp bends. The minimum bend radius is 15mm – sharper bends will result in a loss of light through the fiber which will affect the measurements. Remember light from the LED must travel through the fiber so the ends must be kept clean for reliable testing.

The overall dimensions of the unit is shown in Figure 2. Allow 60mm of height clearance to route the Fibers from the Analyser.

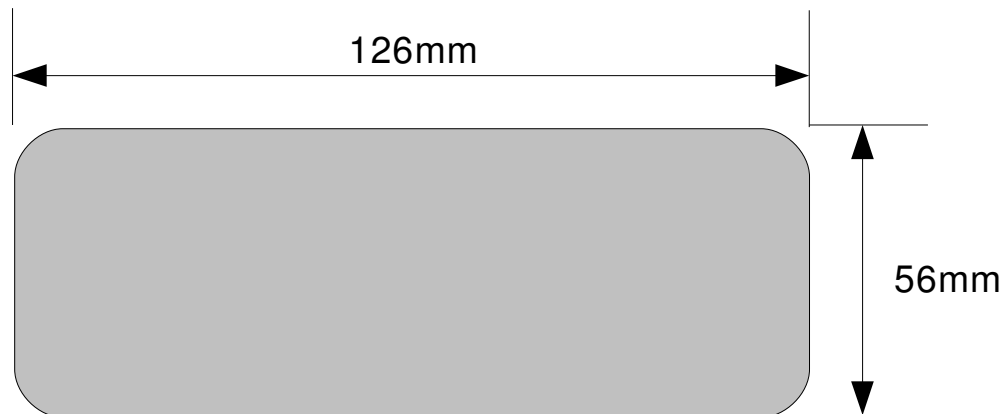


Figure 2

The Power requirements for the Analyser are 5V DC @ 200mA.

If the USB Interface is used then the Analyser will draw its power from the USB Port on the Computer.

If the Serial Interface is used then the Analyser must be supplied power through the 2-pin Power connector.

When power is applied to the Analyser a Green LED will light to indicate it is ready for testing.

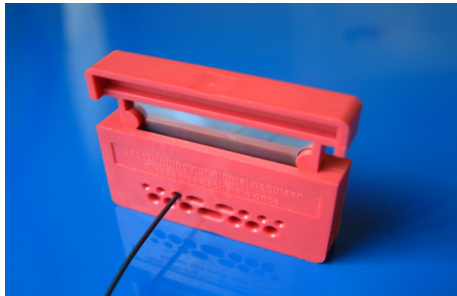
Cutting the Fiber

The LED Analyser is supplied with pre-finished fiber ends so do not cut the fiber unless it is necessary. If there are unused fibers coil them up in the Fixture. They could be useful later if a fiber is broken.

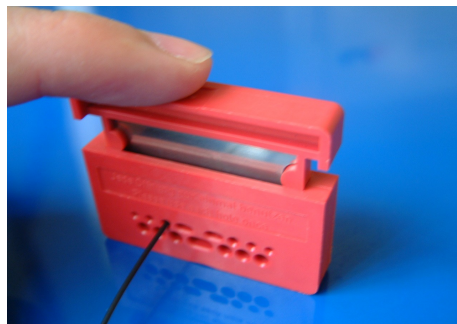
Sometimes, due to space constraints or the fiber end has been damaged, it will be necessary to cut the fiber.

The procedure for cutting the fiber using the Fiber Cutter is as follows:-

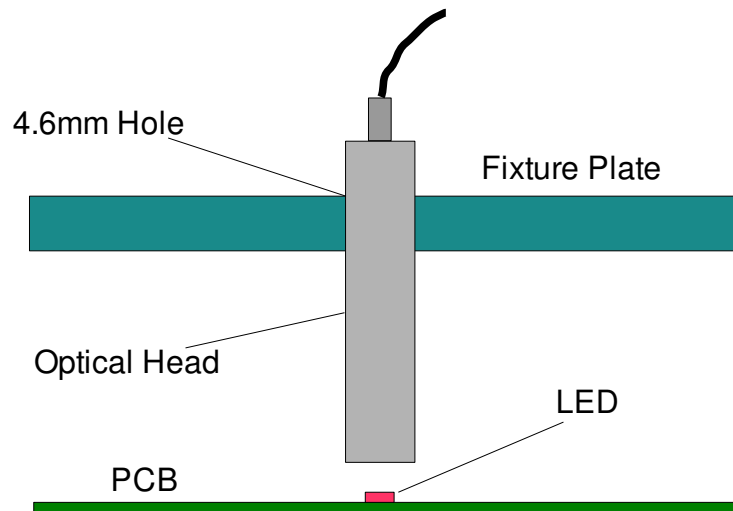
- Select the correct hole size for the fiber being cut.
- Pull up the razor blade.
- Push fiber into the selected aperture until the damaged region is approximately 2 mm beyond the razor blade.



- Press down on the top of the razor blade until the fiber is cut through.



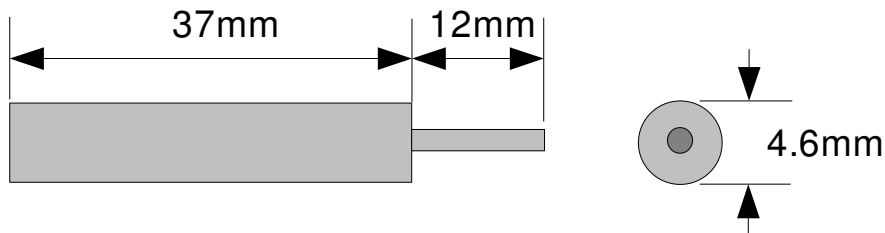
Mounting the Optical Head



Optical Head Positioned over PCB with LED

The Optical Head must be mounted over the LED to be tested. It must be located over the **Optical** centre of the LED (This is the spot where the light originates). This is not always the mechanical centre of the LED – it is often offset from the centre. Do not be tempted to guess the point – you will be sorry later! It is worth the effort to look up the data sheet for the LED on the Internet. You will find the optical centre in the mechanical drawing of the LED (usually found towards the end of the data sheet).

The Optical Head compensates for the variation in placement of LED's from board to board. This has a big effect when testing the LED Intensity. So if the Optical Head is not positioned correctly it could compromise the Intensity testing later.



Optical Head Hole Size

The mounting hole size is **4.6mm**. The Optical Head can be pushed through the hole and positioned over the LED. Set a gap of 3mm between the top of the LED and the bottom of the head initially. Do not fix the Head permanently at this stage. It may be necessary to adjust the gap later during the debug phase.

Make sure that the end of the fiber is clean. Loosen the screw part of the connector and gently insert the end of the fiber until the stop is reached (approximately 21mm). Tighten the screw until the fiber is held in position. Do not over tighten the screw.

The Head may be fixed permanently, **after debug has been completed**, with a glue such as Epoxy or Silicone.

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Interface and Power Wiring

Serial Connector (RS232C)

<i>Pin</i>	<i>Signal</i>	<i>Pin on 9-Pin D-type</i>
1	Tx from LED Analyser	2
2	Rx from LED Analyser	3
3	GND	5

Power Connector

<i>Pin No</i>	<i>Signal</i>
1	Power (5V DC)
2	GND

Power is applied to pins 1 and 2.

Make sure Pin 2 GND is wired to System Ground.